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ABSTRACT

This data brief focuses on statistics related to employment of scientists and engineers in 1995. The data is presented in four charts that provide information on: (1) the number of employed scientists and engineers by broad occupation and broad field of highest degree in 1995; (2) percentage distribution of employed scientists and engineers by broad occupation and highest degree received in 1995; (3) unemployment rates of scientists and engineers by broad occupation and highest degree received in 1995; and (4) median annual salaries of employed scientists and engineers by broad occupation and degree received in 1995. (DDR)

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Employment of Scientists and Engineers Reaches 3.2 Million in 1995: Data Brief

by
R. Keith Wilkinson

SE041839

Science Resources Studies Division

DATA BRIEF

Directorate for Social, Behavioral and Economic Sciences

National Science Foundation

NSF 98-325, August 13, 1998

Employment of Scientists and Engineers Reaches 3.2 Million in 1995

by R. Keith Wilkinson

Almost 3.2 million people with a bachelor's degree or higher were employed in a science or engineering (S&E) occupation in 1995 (table 1). Engineers represented 42 percent (1.34 million) of the employed scientists and engineers, followed by computer and mathematical scientists with 30 percent (950,000) of the total. Physical scientists accounted for less than 10 percent of the S&E workforce in 1995. By subfield, electrical engineers made up about one-fourth (357,000) of all employed engineers while biological scientists accounted for a little over one-half (169,000) of the employment in the life sciences. In the physical and social science occupations, chemists (111,000) and psychologists (167,000) were the largest occupational subfields, respectively.

Another 34 percent of bachelor's degree holders had jobs as computer and mathematical scientists. These occupations were also the most popular among those with master's degrees (40 and 30 percent, respectively). Most doctorate holders were employed as social scientists (27 percent), life scientists (25 percent), and physical scientists (19 percent).

Approximately 83 percent of the 3.2 million individuals in the S&E workforce in 1995 received their highest degree in an S&E field.

Table 1. Number of employed scientists and engineers by broad occupation and broad field of highest degree: 1995

Occupation	Total	Field of highest degree: Computer & mathematical sciences	Life sciences	Physical sciences	Social sciences	Engineering	Non-S&E fields
All S&E Occupations	3,185,600	446,500	297,200	312,900	384,400	1,193,700	550,800
Computer and mathematical scientists	949,500	406,600	21,700	36,900	88,500	145,700	250,000
Life scientists	305,300	1,400	217,100	19,500	14,400	3,800	49,100
Physical scientists	274,300	4,800	33,400	200,800	7,500	14,200	13,600
Social scientists	317,500	1,700	3,500	1,100	253,100	1,700	56,500
Engineers	1,339,000	32,000	21,500	54,600	20,900	1,028,400	181,700

SOURCE: National Science Foundation, Division of Science Resources Studies, 1995 SESTAT Surveys.

Almost 58 percent of those working in S&E occupations in 1995 reported their highest degree type as a bachelor's degree, while 28 percent listed a master's degree and 13 percent a doctorate. Other professional degrees were reported as the highest degree type by about 1 percent of the S&E workforce. Almost half of those with bachelor's degrees were employed as engineers (table 2).

Relationship between occupation and education

Approximately 83 percent (2.6 million) of the 3.2 million individuals in the S&E workforce in 1995 received their highest degree in an S&E field, with proportions varying by occupation. By broad occupation, almost 77 percent of engineers and 80 percent of social scientists were working in their highest degree field. Similar proportions were seen for physical scientists (73 percent) and life scientists (71 percent). By contrast, over 57 percent of computer and mathematical scientists reported that their highest degrees were in other fields. By degree level, about 85 percent of employed scientists and engineers at the bachelor's level had their degree in an S&E field, reflecting the large proportion of engineers with bachelor's degrees. By comparison, about 74 percent of

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Table 2. Percentage distribution of employed scientists and engineers by broad occupation and highest degree received: 1995

	Highest degree received				
Occupation	Total	Bachelor's	Master's	Doctorate	Professional
	3,185,600	1,844,000	892,700	418,300	30,600
All S&E Occupations	100.0	100.0	100.0	100.0	100.0
Computer and mathematical scientists	29.8	33.9	30.0	12.9	8.8
Life scientists	9.6	6.6	7.2	24.5	56.7
Physical scientists	8.6	6.9	7.5	18.9	0.6
Social scientists	10.0	3.3	15.2	27.1	25.8
Engineers	42.0	49.3	40.1	16.7	8.1

SOURCE: National Science Foundation, Division of Science Resources Studies, 1995 SESTAT Surveys.

Many people trained in science and engineering routinely find S&E related employment in nontraditional S&E occupations.

those at the master's level and 94 percent of those with doctorates had their degrees in an S&E field.

A large number of persons trained in science and engineering routinely find S&E related employment in nontraditional S&E occupations. For example, there were approximately 4.7 million people employed in non-S&E occupations in 1995, whose highest degree was in an S&E field. About two-thirds of this group, however, reported that their work was at least somewhat related to their degree. Approximately four-fifths of both doctorate and master's S&E degree recipients who were employed in non-S&E occupations in 1995 reported that their job was closely related to their degree, compared to three-fifths of bachelor's degree holders.

Unemployment

Only 2.2 percent (70,600) of the scientists and engineers in the labor force in 1995 were unemployed. This compares with a 5.6-percent unemployment rate for the U.S. labor force as a whole in 1995 and 2.5 percent for all professional specialty workers. The highest unemployment rates were reported for physical scientists (2.7 percent) and the lowest for social scientists (1.2 percent). By degree level, only 2.1 percent of the scientists and engineers whose highest degree was a bachelor's degree and 1.8 percent of those with a doctorate were unemployed, compared to 2.5 percent of those with master's degrees (figure 1).

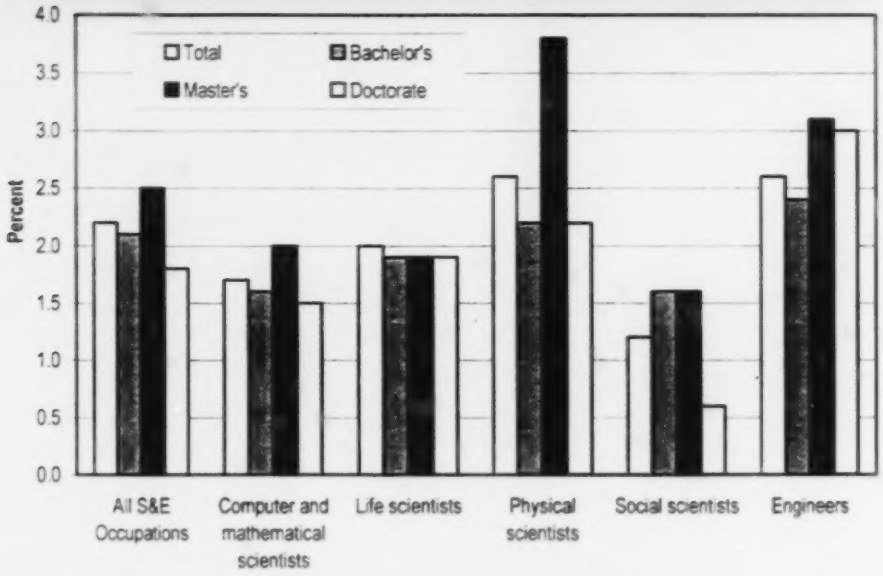
For the S&E degree holders in nontraditional S&E occupations, the overall unemployment rate was 2.8 percent (136,000) in 1995. Unemployment rates ranged from 2.5 percent for those with life science degrees to 3.1 percent for physical science degree holders. By degree level, 3 percent of those with S&E bachelor's degrees were unemployed, versus 2.1 percent for those with a master's degree or doctorate.

Employment by Sector

The private for-profit sector is by far the largest employer of S&E workers. In 1995, 72 percent of scientists and engineers with bachelor's degrees and 59 percent of those with master's degrees were employed in a private, for-profit company. The academic sector was the largest sector of employment for those with doctorates (43 percent). Sectors employing smaller numbers of S&E workers include educational institutions other than 4-year colleges and universities, nonprofit organizations, and state or local government agencies.

Among S&E occupations, there is a wide variation in the proportions of scientists and engineers employed in private for-profit industry. While nearly three-fourths of both computer and mathematical scientists and engineers were employed in this sector, only one-fourth of life scientists and one-fifth of social scientists were similarly employed in 1995. Educational institutions employed the largest proportion of life scientists (49 percent) and social scientists (44 percent).

Figure 1. Unemployment rates of scientists and engineers, by broad occupation and highest degree received: 1995



NOTE: Total includes other professional degree recipients.
SOURCE: National Science Foundation, Division of Science Resouces Studies, 1995 SESTAT Surveys

Salaries

In 1995, the median annual salary of bachelor's degree holders employed full-time in S&E occupations was $48,000; for master's recipients it was $53,000 and for doctorate holders $58,000 (figure 2). Engineers commanded the highest salaries at each degree level. The second highest salaries were earned by computer and mathematical scientists at the bachelor's and master's level, and physical scientists at the doctorate level.

Median salaries for scientists and engineers rise steadily with the years since the completion of their degree. For example, individuals who earned their bachelor's or master's degrees in the early 1990s earned about $15,000 less in 1995 than those who had received these degrees in the early 1980s. For doctorate holders, the difference is $18,000.

Information in this Data Brief is from the National Science Foundation's (NSF) Scientists and Engineers Statistical Data System (SESTAT), a unified database recording employment, education, and other characteristics of the nation's scientists and engineers. These data are collected from three component surveys[1] sponsored by the NSF and conducted biennially.

This data brief was prepared by:

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[1] SESTAT is comprised of three surveys:
National Survey of College Graduates (NSCG)
National Survey of Recent College Graduates (NSRCG)
Survey of Doctorate Recipients (SDR).
SESTAT has as its target population: residents of the United States (U.S.) with a baccalaureate degree or higher who, as of the study's reference period, were noninstitutionalized, age 75 or less, and either trained as or working as a scientist or engineer. A baccalaureate-or-higher degree is a bachelor's, master's, doctorate, or professional degree.

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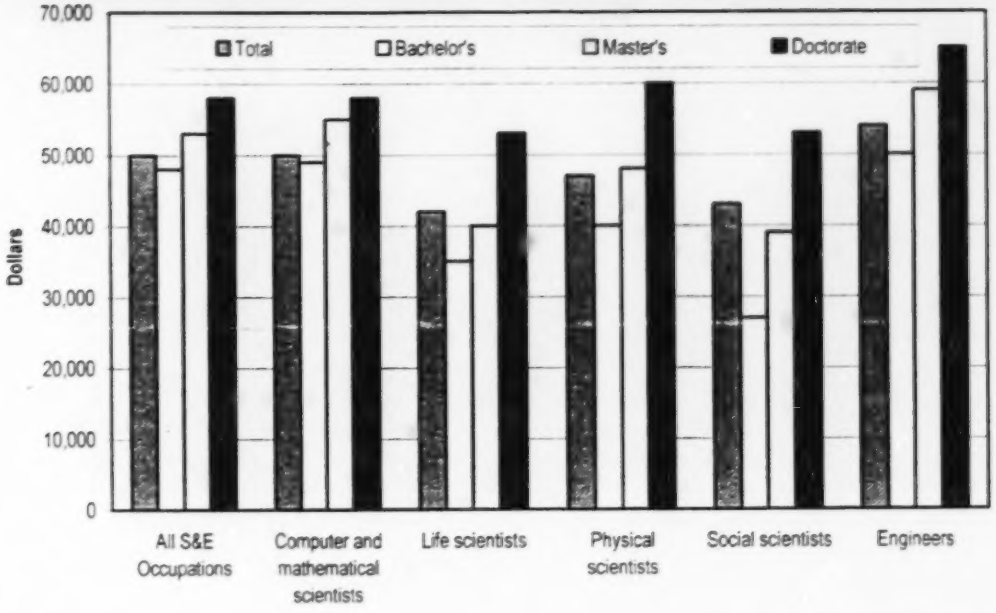
Figure 2. Median annual salaries of employed scientists and engineers by broad occupation and highest degree received: 1995



NOTE: Total includes other professional degree recipients.
SOURCE: National Science Foundation, Division of Science Resources Studies, 1995 SESTAT Surveys.

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